Lesson 4.6

Challenge Practice

1.

Statements	Reasons
1. $\angle WVZ \cong \angle YVX$	**1.** Vertical Angles Theorem
2. V is the midpoint of $\overline{XZ}$.	**2.** Given
3. $\overline{ZV} \cong \overline{XV}$	**3.** Definition of midpoint
4. $\overline{XY} \parallel \overline{ZW}$	**4.** Given
5. $\triangle WVZ \cong \triangle YVX$	**5.** ASA Congruence Postulate
6. $\overline{YV} \cong \overline{WV}$	**6.** Corresp. parts of $\cong$ $\triangle$ are $\cong$.

2.

Statements	Reasons
1. $\angle 2 \cong \angle 1$, $\angle 4 \cong \angle 5$	**1.** Given
2. $\angle 1 \cong \angle 3$	**2.** Vertical Angles Theorem
3. $m\angle 2 = m\angle 1$, $m\angle 1 = m\angle 3$	**3.** Definition of congruent angles
4. $m\angle 2 = m\angle 3$	**4.** Substitution property of equality
5. $\angle 2 \cong \angle 3$	**5.** Definition of congruent angles
6. $\overline{JL} \cong \overline{JL}$	**6.** Reflexive property of congruence
7. $\triangle JKL \cong \triangle JML$	**7.** ASA Congruence Postulate
8. $\overline{KL} \cong \overline{ML}$	**8.** Corresp. parts of $\cong$ $\triangle$ are $\cong$.

3.

Statements	Reasons
1. L is the midpoint of $\overline{JN}$.	**1.** Given
2. $\overline{JL} \cong \overline{LN}$	**2.** Definition of midpoint
3. $\overline{PJ} \cong \overline{QN}$, $\overline{PL} \cong \overline{QL}$	**3.** Given
4. $\triangle JLP \cong \triangle NLQ$	**4.** SSS Congruence Postulate
5. $\angle PKJ$ and $\angle QMN$ are right angles.	**5.** Given
6. $\angle PKJ \cong \angle QMN$	**6.** Right Angles Congruence Theorem
7. $\angle KJP \cong \angle MNQ$	**7.** Corresp. parts of $\cong$ $\triangle$ are $\cong$.
8. $\triangle PKJ \cong \triangle QMN$	**8.** AAS Congruence Theorem
9. $\angle MQN \cong \angle KPJ$	**9.** Corresp. parts of $\cong$ $\triangle$ are $\cong$.

4.

Statements	Reasons
1. $\angle R \cong \angle S$, $\angle 2 \cong \angle 3$	**1.** Given
2. $\overline{TV} \cong \overline{TV}$	**2.** Reflexive property of congruence
3. $\triangle RTV \cong \triangle SVT$	**3.** AAS Congruence Theorem
4. $\overline{RT} \cong \overline{SV}$	**4.** Corresp. parts of $\cong$ $\triangle$ are $\cong$.
5. $\angle 5 \cong \angle 6$	**5.** Vertical Angles Theorem
6. $\triangle RTU \cong \triangle SVU$	**6.** AAS Congruence Theorem
7. $\overline{RU} \cong \overline{SU}$	**7.** Corresp. parts of $\cong$ $\triangle$ are $\cong$.

5.

Statements	Reasons
1. $\overline{BC} \cong \overline{CD}$, $\overline{AB} \cong \overline{AD}$	**1.** Given
2. $\overline{CA} \cong \overline{CA}$	**2.** Reflexive property of congruence
3. $\triangle ABC \cong \triangle ADC$	**3.** SSS Congruence Postulate
4. $\angle BCA \cong \angle DCA$	**4.** Corresp. parts of $\cong$ $\triangle$ are $\cong$.
5. $\overline{CE} \cong \overline{CE}$	**5.** Reflexive property of congruence
6. $\triangle CEB \cong \triangle CED$	**6.** SAS Congruence Postulate
7. $\angle CEB \cong \angle CED$	**7.** Corresp. parts of $\cong$ $\triangle$ are $\cong$.
8. $m\angle CEB = m\angle CED$	**8.** Definition of congruent angles
9. $m\angle CEB + m\angle CED = 180°$	**9.** Linear Pair Postulate
10. $m\angle CEB + m\angle CEB = 180°$	**10.** Substitution property of equality
11. $2m\angle CEB = 180°$	**11.** Simplify.
12. $m\angle CEB = 90°$	**12.** Division property of equality
13. $\angle CEB$ and $\angle CED$ are right angles.	**13.** Definition of right angle
14. $\overline{AC} \perp \overline{BD}$	**14.** Definition of perpendicular lines

6.

Statements	Reasons
1. $\overline{AB}$ and $\overline{CD}$ bisect each other at point M.	**1.** Given
2. M is the midpoint of $\overline{AB}$ and $\overline{CD}$.	**2.** Definition of segment bisector
3. $\overline{AM} \cong \overline{MB}$, $\overline{DM} \cong \overline{MC}$	**3.** Definition of midpoint
4. $\angle AMD \cong \angle BMC$	**4.** Vertical Angles Theorem
5. $\triangle AMD \cong \triangle BMC$	**5.** SAS Congruence Postulate
6. $\angle A \cong \angle B$	**6.** Corresp. parts of $\cong \triangle$ are $\cong$.
7. $\overline{AD} \parallel \overline{BC}$	**7.** Alternate Interior Angles Theorem